

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number  
**WO 2004/042819 A1**

(51) International Patent Classification<sup>7</sup>: **H01L 23/485**

(21) International Application Number:  
PCT/IB2003/004900

(22) International Filing Date: 31 October 2003 (31.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02292766.9 6 November 2002 (06.11.2002) EP

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(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,

KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

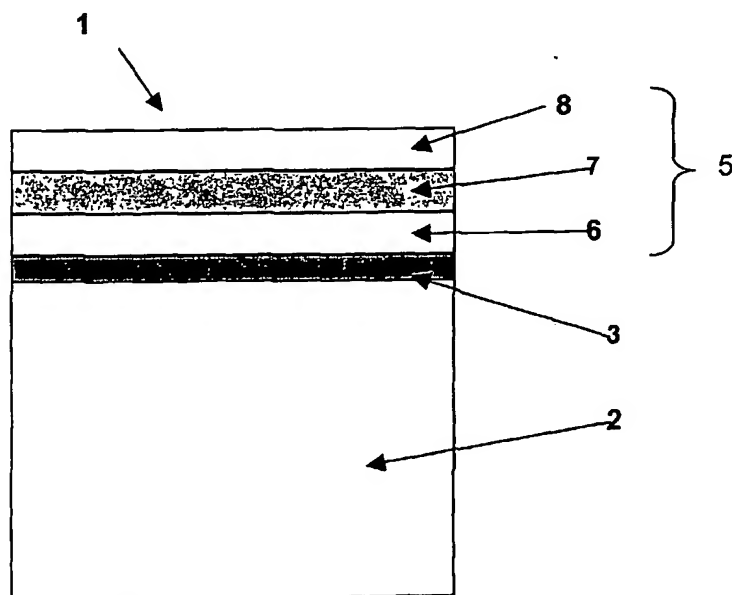
(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii)) for the following designations AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,  
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,  
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH,  
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,  
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO  
patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG,  
ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,

[Continued on next page]

(54) Title: **DEVICE COMPRISING CIRCUIT ELEMENTS CONNECTED BY BONDING BUMP STRUCTURE**



(57) Abstract: An electronic device comprising a first circuit element and a second circuit element, which are connected by a bonding-bumps structure, said bonding-bumps structure comprising: bonding-bump (1) of small dimensions comprises a gold pedestal portion (2) formed on a circuit element (10), a nickel barrier layer (3) formed on the pedestal portion (2), and a soldering portion (5) formed on the barrier layer (3). The soldering portion (5) comprises first (6) and second (8) gold layers having an intermediate tin layer (7) sandwiched therebetween. The relative masses of gold and tin in the first, second and intermediate layers (6-8) gives the soldering portion (5) a composition corresponding to the eutectic gold-tin composition. The bonding-bump (1) may be manufactured by depositing a titanium seed layer onto the circuit element (10), removing portions of the titanium layer where there are contact pads (P) on the circuit

element (10), electroplating the layers and portions (2-8) constituting the bonding-bump (1), and removing the remaining portions of the seed layer. This bonding-bond technique is used to connect circuit elements in electronic devices. Such electronic devices are appropriate to be used in telecommunications, for instance in mobile terminals.

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TJ, TM), *European patent* (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), *OAPI patent* (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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**Published:**

— with international search report